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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,344	07/27/2001	In Kwon Jeong	9323.050.00-US	1220

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EXAMINER
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MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/917,344	<b>Applicant(s)</b> JEONG, IN KWON	
	<b>Examiner</b> Sylvia R. MacArthur	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 3-23 and 67-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-23 and 67-70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 3,6-8, 10-13, 16, 21 and 67-70 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakurai et al (US 6,358,131).

Claim 67: Sakurai et al teaches a polishing apparatus comprising polishing unit 10B, a first transfer robot (wafer carrier 14) and a second transfer robot (carrier 14) wherein each robot is configured to transfer a wafer to the polishing unit, see Fig. 1 and 4 and the abstract. Since the robots are two different robots they inherently are positioned so that their centers are offset from the center axis.

Claims 68-70 and 8: Robot 9 transfers the wafers from the polishing unit 10B to the post polishing unit (cleaning unit 10A).

Claims 3 and 6: Sakurai et al further teaches a supply unit (loading and unloading stages 1) see Figs. 1 and 4 to note the position of the supply unit is positioned between the polishing unit and the supply unit. A supply mechanism (robot 2) is configured to transfer the objects from the supply unit to the first and second robots

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Claim 7: Sakurai et al further teaches a object storage housing(cassettes) see col. 4 lines 51-55.

Claims 10 and 11: Since stages 1 act as loading and unloading stage with multiple cassettes shown, these claims are anticipated.

Claim 12: Two cleaning machines are shown in Fig. 4 and 8.

Claims 13 and 16: Two polishers are shown in Figs. 4 and 8.

Claim 21: A vertical lift 20 is provided as a transfer station according to col. 4 lines 1-15.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4,5, 14, 15, 17-20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Kim et al (US 6,503,365).

The teachings of Sakurai et al were discussed above.

Sakurai fails to teach vertically movement of the cassettes (storage housings) or wafers between each of the polishing units.

Kim et al teaches a multichamber system having compact installing set up. Kim teaches the advantages of using vertical movement in transportation of wafers in and throughout a multichamber processing system. Fig. 5 illustrates the motivation of using vertical

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movement to decrease the footprint of the multichamber system. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use vertical movement as a means of transporting wafers in a multichamber system.

Regarding claim 14: Sakurai et al fails to teach third and fourth polishing chambers.

Kim et al teaches a plurality of processing chambers wherein at least four of them could be polishing chambers. The motivation to design the processing chambers of Kim et al as specifically polishing chambers is well within the design choice of one of ordinary skill in the art. Using the apparatus of Sakurai et al it is a matter of duplication of parts which was held to have been obvious by In re Harza. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to design the apparatus of Sakurai with more polishing chambers with the same footprint using the suggestion of Kim et al to build the chambers vertically upon one another rather than the convention adjacent to in the horizontal direction. Increasing the number of chambers increases the throughput of the overall system which is an advantage sought after in the manufacturing of semiconductors.

5. Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Wang.

The teachings of Sakurai et al were discussed above.

Sakurai et al fails to teach a thickness measurement unit.

Wang teaches an optical dielectric thickness monitor 42 for CMP (a form of cleaning). The motivation to provide the monitor in a cleaning device as cited by Wang in

col. 3 lines 6-19 is that it provides timely thickness measurements on the layer being cleaning. Thus, ensuring a more efficient and reliable cleaning process.

It would have been obvious to modify the apparatus of Sakurai et al with the thickness monitor of Wang to ensure the efficient optimal cleaning result.

***Response to Arguments***

6. Applicant's arguments with respect to claims 3-23 and 67-70 have been considered but are moot in view of the new ground(s) of rejection. The examiner clarified that the prior art of Sakurai et al teaches robot (wafer carrier 14) which transfers wafer to the polishing unit 12.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the hours of 8:30 a.m. and 5 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sylvia R MacArthur  
Patent Examiner  
Art Unit 1763

October 30, 2006